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with the best respects
DISCOURSE of his pre-

John Jackson
ON

the American
FEVER;

DELIVERED BEFORE THE

MASSACHUSETTS MEDICAL SOCIETY,

AT THEIR ANNUAL MEETING, IN JUNE, 1818,

AT THEIR REQUEST.

By JAMES JACKSON, M.D.

Professor of the Theory and Practice of Physic in the University at Cambridge, Fellow
of the American Academy of Arts and Sciences, of the American Philoso-
phical Society, &c. &c.

21237
BOSTON :

PRINTED BY WELLS AND LILLY

1818.

DISCOURSE, &c.

I AM not willing to pass by the opportunity of addressing you, my friends and brethren, without availing myself of it to congratulate you on the flourishing and prosperous state of our Society. It is not that I wish to excite any vanity on this subject ; but it will give us new ardour in promoting the important objects of which we have the care, to contemplate the benefits which are resulting from that care. It is our business to promote the improvement and extension of medical science. But this, I do not hesitate to say, is the least important part of our business. We have also to exercise our knowledge and discretion, and to employ our influence, in order to guard our fellow citizens from deception by those, who are pretending only to the art we profess. To us it belongs to guard the gate way, by which men enter our profession. This is a most important duty. It is a duty which naturally attaches itself to every well-informed and respectable

physician, for the very reason that it cannot be so well performed by persons in any other line of life. Individuals however may be discouraged from performing this duty by a belief that their influence will be very limited; and by an apprehension that in some cases their conduct may be attributed to unworthy motives. No such objections can arise from a regular association of all the respectable members of the profession in any district or country; and from such an association therefore, when pursuing this great object firmly, yet discreetly, the happiest effects may ensue. In other countries various attempts have been made for this purpose, but with very limited success. In no place within my knowledge have effects been produced, even in much longer periods, at all comparable to those, which have resulted from the happy system adopted by this society since their re-organization in 1803.* It remains for us only to pursue our path steadily; and, as fast as the state of our country will permit, to raise still higher and higher the standard of medical education.

While we indulge in these self-gratulations, and stimulate each other to increased exertions, it is not necessary to pamper our vanity by the pretence, that we claim a high rank among other medical institutions, among the learned societies of Europe, in the improvement of medical science. Considering the nature of our institution, we may feel sufficient satisfaction, if we take

* See Note A.

the measures necessary to ensure the extension of the solid and useful medical knowledge, which already exists in the world. It is only one man in an age, perhaps, who makes great and brilliant improvements in any science. It is only from select associations, formed in large and prosperous cities, that can issue rich streams, fraught with constant improvements in the details of our art. Societies like ours may make occasional and respectable additions, but not regular and stated contributions, to the mass of science already existing in the world. The reasons for this are too obvious to need to be explained. Yet individuals should always bear in mind that habits of exact observation, of careful research and patient reflection, may enable each one to do something; or at least may prepare him, if opportunities occur, to avail himself of them. True knowledge is a precious metal, which will always command its value in the market, if exhibited in a proper form. The ore may always be found by those who labour sufficiently to procure it. It often may be found in rich beds under the ground which we walk over most carelessly; and the man who will have the industry to raise even the smallest quantity from its depths, and to separate the pure metal from the viler matters with which it is compounded, may be assured of obtaining for it its full value.

But it belongs to me to fix on some particular topic of discourse, instead of descanting on the general concerns of our Society, or of the pro-

fession at large. For this topic I have selected Fever. It is not without some hesitation that I have selected this subject, since it is one so often discussed, and one, on which the world seem destined never to agree. Yet it is so interesting and so important, that it will bear perhaps better, than any other subject appertaining to our profession, to be brought frequently under review. You will not of course suspect that it is intended to go into a full discussion of a disease, on which so many volumes might be written. On the contrary, it is only designed to throw out, in a form not very systematic, some general remarks, and to point out some distinctions, the tendency of which may be to render our ideas respecting this malady more definite.

Sydenham appears to have a good practical familiarity with fevers; and saw that they presented themselves under very different modifications, yet with so much of a common character, as to be recognized as the same disease. He was not able, however, to analyze the cases of this disease, so as to arrange them under any classical divisions. He was disposed to consider every new epidemic as a new species of fever; and it would seem as if he saw nothing common to these various species of fever, except this, that all were marked by agitations of the living system, arising from efforts to expel some offending matter.

Both before and since the time of this justly celebrated physician others have attempted va-

rious arrangements, under which they might comprehend all the cases of fever. Yet no such arrangement has hitherto obtained even general approbation, much less universal assent, except that division which relates to the form, or type only, and not to the essential nature of the disease. It is certain however that we do see very wide differences between cases of disease, which all would recognize as cases of fever. Why cannot these different cases be arranged under different species and varieties? Is the difficulty founded in the want of patient attention, or in the want of sagacity among men, or in the non-existence of distinct species? It cannot, I think, be charged to either of the two first causes. No subject perhaps has been more patiently investigated, and none by men of greater sagacity. But these men have too commonly commenced their investigations under a persuasion that distinct species of fever do exist, although they could not discover the diagnostic symptoms which mark them. That this persuasion is wrong, and that distinct species of fever, except as to type, do not exist, is proved to me by this, that whatever characteristics you select as the distinguishing and peculiar signs of one species, you find these gradually becoming more faint and indistinct in a series of cases; and you find them at last disappearing under the symptoms of what you would consider another species. I hold then that fevers cannot be arranged in different species, because nature has not constituted them.

We may find strongly marked lines of distinction between particular cases; but intermediate ones are found so gradually changing from each of them, as to leave, at every point of comparison among these intermediate cases, shades of difference only, and not to permit lines of generic or specific division to be drawn at any one point. It seems necessary then to designate the characteristics which are most frequently prominent in fevers, and to consider the cases marked by each of these to be varieties, in a practical point of view, without ever losing sight of the truth just stated, that proper species are not known to nature.

With a view to explain the opinions I hold on this subject more fully, I shall inquire very briefly what are the characters of fever and its varieties; and on this inquiry I shall ground some remarks on epidemic fevers. I shall then suggest some rules for investigating the characteristics of particular epidemics as they may rise; and shall offer a few hints as to the principles, which should govern us in the treatment of such epidemics.

What are the characters of fever? By this term I do not mean simply vascular excitement, nor heat, nor thirst; but I mean that disease, which by many authors has been called idiopathic fever. It is not the intimate nature of this disease, which is proposed for inquiry, but its characters; the circumstances and appearances by which it is known.

It is a principal characteristic of fever, that it is a disease of the whole system. That it is so must be admitted, although the whole system is not affected in every instance, and although it is very seldom affected equally. It is to be considered a disease of the whole system, because there is not any part of the system which, is not liable to be affected by it; and in most cases every part is affected in some degree; and because the observations of pathologists afford no reason to believe that there is any one part of the body, or any subordinate system, in which the disease usually commences, and to the affection of which its phenomena can be referred.*

Persons afflicted by fever have all, or nearly all the functions deranged; but not uniformly in the same mode. A careful attention to the phenomena seems to me to show, that an affection of the vital powers, rather than a derangement of the functions, is the immediate or primary effect of the action of the remote, or noxious causes. The derangement of the functions must indeed immediately follow an affection of the vital powers, since it is by possessing these powers the organs are enabled to perform the functions; and this derangement must be modified according to the force with which the predisposing and exciting causes act, according to the constitution and previous state of the subject, and according to various accidental causes, operating upon him

* See Note B

at the time of the attack and subsequently. In some instances one and in others another of these causes will have most effect in modifying the disease. When the predisposing cause acts with little force, although many persons in the same vicinity be exposed to it, few persons will be affected ; and the disease will perhaps derive its character mostly from other and accidental circumstances. When the predisposing cause is powerful, many persons will be affected ; an epidemic fever will be produced ; and here the predisposing cause will give so much of character to the disease, as that it will appear under nearly the same aspect in the greatest number of persons affected by it. From the greater prevalence of one, or the other of these causes may no doubt arise many of the varieties of fever.

In the best descriptions, which we have of this disease, it is considered as consisting of paroxysms ; and the type, or form of the fever is derived from the order, in which these paroxysms occur. A fever consisting of one distinct paroxysm is called an ephemera. One consisting of two, or more distinct paroxysms is called an intermittent. Fevers, in which distinct paroxysms do not occur, but in which the disease is prolonged beyond the usual period of one paroxysm, are called continued. Although distinct paroxysms are not discovered in fevers of this type, yet pathologists have believed that such fevers do consist of paroxysms ; but that these are not distinct-

ly seen, because a second paroxysm begins before the first has terminated, a third before the second has terminated, &c. This explanation has been thought to derive support from the occurrence of daily exacerbations in a large proportion of the cases of continued fever.

This doctrine, that continued fevers like intermittents consist of paroxysms, has always appeared to have some foundation in nature ; at the same time that, viewed strictly in relation to the facts, it is obviously not true. That is, it is not true that continued fevers consist of distinct, or perfect paroxysms, similar to those which occur in intermittents. Yet it is true that, setting aside the form or order of their phenomena, continued fevers seem to be made up of the same elements as those, which constitute intermittents. In order to view this subject in a more just light, let us consider for a moment what are the elements which compose a paroxysm.

A perfect paroxysm consists of four parts, the access, the ague fit, the hot fit and the crisis. All these parts are not found in every paroxysm nor, when present, do they bear any constant proportions to each other, either in force or duration. Hence, when all are present, one or two of the parts may be so slight in comparison with the others, as to be quite overlooked.

The access is marked by symptoms, which show not only a change in the functions, but a change also in the powers, or vital properties ; in as much as external agents do not produce the

same effects on the body as in health; and the internal relations between different parts of the system are not maintained as in health.* The most prominent symptoms of the access are lassitude, weariness, indisposition and inability for exertion, a diminution or loss of appetite, and a suspension or diminution of all the functions of assimilation and of formation.† In addition it is also noticed, while the symptoms of the access continue alone, that the capillary vessels on the surface of the body are contracted, and probably the same happens in respect to those vessels in the internal parts of the body; while there are symptoms, which seem to denote that the blood is accumulated in and about the heart.

This stage is called the access, because the symptoms which belong to it may often be noticed in different degrees of force, and for a longer or shorter time, before the occurrence of any other symptoms. But the occurrence of a distinct access is often wanting; and the symptoms, which belong to it, are also manifested in a great degree during every part of a paroxysm, and during every part of a continued fever, except the crisis, to which it is opposed. In other words, the access does not necessarily commence before the other stages; but the symptoms which belong to it, or some of them are present during the whole disease and seem most particularly to constitute it; and they

* See Note C.

† See Note D.

disappear only during the crisis,* which consists in a solution, or subsidence of the disease and in a restoration of the vital powers to their former state, though not to their former degree.

The ague fit and the hot fit consist of symptoms, which need not be particularly described. They are not peculiar to the disease called idiopathic fever, but occur also in other cases, in which extraordinary actions are going on in the living system. They seem to appertain mostly, if not altogether, to the vascular system ; and to consist in, or necessarily to attend the efforts, by which the symptoms of the access are removed and those of the crisis are produced. It does not seem that they are in themselves, and necessarily, inimical to life ; but the contrary.† They may sometimes occasion death, but it is only in modes, which may be called accidental.

If this brief analysis of a paroxysm of fever has been correctly made, it will I think be evident what should be said respecting the doctrine that continued fevers, as well as intermittents, are composed of paroxysms. Of perfect and distinct paroxysms the former certainly are not composed. But they are composed of the same elements, which enter into and constitute the paroxysms of intermittents. This is the similarity which has been so often adverted to by physicians, without

* See Note E.

† See Note F.

its having been pointed out with sufficient distinctness.

Regarding fevers as constituted in this way we are prepared to distinguish more satisfactorily some of the varieties, which are constantly noticed among them. These are such as depend on the comparative prominence of the symptoms of some one or two of the elements of a paroxysm. For instance, when the symptoms of the access are most prominent, the fever is what has been called nervous. Accompanying the access and belonging to it, there is often great coldness; but if a proper ague fit, shivering, shuddering, rigor, and horror take place, the hot fit almost universally and perhaps always ensues. The symptoms of the ague fit are however sometimes severe and continue for an unusual time with those of the hot fit. In this case the ancients gave to the disease the epithet *epialos*. When the hot stage is especially violent, the fever has been called either ardent, or inflammatory according to particular circumstances. If the depression of the powers is uncommonly great, and especially of that power which has been called vital affinity,* the fever has been called adynamic and putrid.

We see then that, independent of the varieties of fever marked by differences of type, there are varieties dependent on the preponderance of

* See New-England Journal of Medicine, &c. Vol. V. p. 15.

one, or more of the elements, which constitute the disease. It is obvious that the varieties, which may arise from differences in the relative proportions of these elements to each other, are very great and almost endless. There is still a distinction of another kind, which it is important to notice, as explaining one class of the varieties of fever. This distinction is founded on the unequal affection of the system in fevers. Although fever is a disease of the whole system, yet one part, or one subordinate system may be much more powerfully affected than others, and one part may perhaps be altogether exempted from the disease. Hence the distinctions of gastric fever, cerebral fever, &c. Here again, although a predominance of disease sometimes in one and sometimes in another part of the system be unquestionably proved, we cannot follow those nosologists,* who attempt to divide the disease into species, by reference to the part of the body, or by reference to the texture of the parts, principally affected. Inflammation may be distinguished on this ground very well; but in respect to fever, this is never wholly confined to any one organ, nor to any one texture; and although it affects the system unequally, its inequalities are marked in different cases by such slight gradations, that we cannot find a place, at which a line of distinction can be drawn.

Fevers sometimes terminate in death, and that at various periods of the disease and in dif-

* Such as Pinel in his nosographie philosophique

ferent stages of a paroxysm; and they sometimes terminate in health. They usually terminate in health by a crisis, more or less distinctly marked. But they also terminate in other diseases; and also in frequent instances have other diseases combined with them. These diseases, in which they terminate, or with which they combine, are inflammation and haemorrhage. The irregularity and increased danger of the disease, when this combination of local affections with fever takes place, have occasioned cases, in which they occur, to be called ataxic and malignant. I know the objections, which lie against the doctrine of a combination of diseases; yet regarding these diseases not in relation to their causes, and not in relation to their intimate nature, but in relation to their symptoms, or external characters, they must be considered as distinct diseases existing in combination, since each of them may exist separately; and also because one may subside and the other continue alone.

In some cases of fever it would seem as if an inflammation were attempted, but not effected. At least there is found the same fulness of the blood-vessels as in inflammation, with a consequent embarrassment or even suspension of the functions of the part; but none of the processes of inflammation take place. In these instances there is said to exist a congestion of blood in the part so affected. The symptoms of this congestion in combination with fever, require to be

carefully distinguished. One important variety of fever is constituted by this combination.

This variety, if we regard the symptoms which belong to it, may be considered as intermediate between that of inflammation with fever and that of unequal affection of the system by fever; and thus by gradation even this most important distinction between simple fever and fever combined with inflammation is almost destroyed.

It would seem then that the grounds, on which different cases of fever may be distinguished, are of four descriptions; first, in respect to type, and, while fevers resemble each other in type, they may differ in almost all the other respects, which have been mentioned. Second, in respect to the proportion in which the different elements of a paroxysm are present. Third, in respect to the organs, or subordinate systems which are especially affected. Fourth, in respect to local affections occurring in, or being combined with fever, those affections differing in their nature from fever itself. Perhaps the varieties of the third and fourth kinds should be included under one head; but as this is not certain, I think it better to separate them. Future observations may decide this point.* All these varieties, except what relates to type, may be seen in the course of a few years of ordinary practice in almost every situation, where a number of men are collected together; and that, whether the population

* See Note G.

be compact, or scattered. They will however be discovered most readily, when fever is epidemic and when therefore there are opportunities of comparing many patients at the same time.

We are told that all the cases of an epidemic resemble each other; or at least that there is a prevailing character, which is developed more or less perfectly, in every case of an epidemic. It was in following this opinion, Sydenham seemed to consider every epidemic fever as a distinct species; and hence he thought that it was easy to discover one mode of treatment, which should be applicable to all the cases of an epidemic and not to those of any other. That something like this may be true in respect to the majority of cases of an epidemic may be safely admitted; but these doctrines have been carried too far, and have led in many instances to the adoption of an uniform mode of practice in epidemics, which has been injurious. They have led others also, as they led Sydenham, to believe that all past experience was useless in respect to a new epidemic, and that this is always to be studied as a new disease. It seems to me that the experience of almost every extensive practitioner of medicine, when carefully reviewed, will support me in what has been stated in respect to the varieties to be observed in the same epidemic; and that the very persons, who maintain the doctrines opposed, do in many instances give evidence against them. You can scarcely turn to the description of a single epidemic fever, given by a faithful eye witness, in

which the writer, after describing the disease under its most common appearances, does not tell you that there was another class of cases, which differed very considerably from the first. Sometimes even three or four classes are mentioned, or else it is said in general terms that the disease appeared under a great variety of characters. Even in respect to type, varieties are sometimes seen in the same epidemic. Intermittents and remittents are often seen together, and so also remittents and continued fever. Likewise the ephemera is found to occur in the same epidemic with continued fever. But in looking to other characteristics than those of type you will perhaps always find varieties in the same epidemic. Most of the cases in one epidemic shall be simple fever, yet there shall be some in which inflammation or haemorrhage shall take place ; or on the contrary one of these latter shall be combined with fever in the majority of cases, but there shall still be many, in which this combination does not exist.

In one epidemic the symptoms of the access shall be very severe in most of the cases ; in another those of the cold fit ; in another those of the hot fit ; and in another those of the crisis. Meanwhile in each of these epidemics there shall be cases, differing from the rest in the very points, for which the majority are the most remarkable.

Some epidemics are characterized by the unequal affection of the system under fever. It is the brain and the parts connected with that, which are most deranged in the majority of instances

in one epidemic ; the gastric system in another ; the heart and circulating system in a third ; the secretory and excretory systems, or the system of small vessels in a fourth. But, in each of these epidemics cases will occur, which might be classified under each of the others.

The general principle which I wish to state then is this ; although each epidemic fever has its prevailing character derived from the majority of cases, yet there is a considerable variety to be found among those, which belong to the minority. This variety is undoubtedly greater in some epidemics than in others. When the epidemic disease is extremely violent, as often happens at the commencement of its prevalence, the cases are commonly found to resemble each other the most strongly. This circumstance may probably be explained in a manner formerly hinted at. But in proportion as the disease lessens in violence, or at least in proportion as the predisposing cause acts with diminished force, the influence of constitution, habits and exciting causes tend to modify the disease in the subjects whom it attacks.

Indulge me for a few moments in making some application of these remarks to the two great epidemics of our own country, which have been called yellow fever and spotted fever.

The records which we have of the yellow fever show us that,

1st, in respect to type many of the cases were remittent, but more of them continued.

2d. In the largest number of cases the hot stage was violent ; but in some instances the access and the cold stage were most severe and the greatest danger arose from them.

3d. But principally in this epidemic, inflammation existed with fever, either at the beginning, or during its course ; and the great danger of the disease arose from this combination. The inflammation was not however limited to any one part of the body. In most instances it affected the abdominal viscera, sometimes the liver principally, sometimes the stomach. But in others it affected the brain, and, if I mistake not, in some it affected the lungs.

4th. In some cases petechiae showed themselves in the course of the disease ; a circumstance scarcely necessary to be mentioned as evidence that these appearances are not peculiar to any one epidemic, or to any one species of fever. It may be added that the yellowness of the skin and the black vomit, which occurred in many cases of this epidemic fever, are referrible to the affection of the abdominal viscera. They are not therefore pathognomonic symptoms of the disease.

In the petechial fever there were observed, 1st. a few cases of ephemera, although generally the disease was of the continued type. Where the type was continued, the disease was most severe at the first attack.

2d. In the beginning of the disease the symptoms of the access and those of the cold stage

occurred suddenly, sometimes together ; they were extremely violent and frequently continued for an unusual time and even destroyed life ; the hot stage was often almost wanting, or very mild ; the tendency to crisis was much stronger than in common continued fever. If the disease went beyond one paroxysm, it often assumed a much milder character, the symptoms of the access being reduced in violence, but yet continuing, and being mixed or alternated with those of the hot stage.

3d. In many cases, and that especially when this epidemic first made its appearance in any place, there was combined with fever an affection of the brain. I conceive that this affection was oftentimes only a congestion ; but that in not a few instances it was an inflammation of some part of the encephalon, accompanied by great congestion. Probably most of the fatal cases were those, in which the brain was violently affected.

4th. In some persons petechiæ appeared, and in others eruptions on the skin took place ; but in very numerous instances these were wanting, and in some places and seasons altogether so. All these appearances were referrible to a disposition to cutaneous inflammation.

5th. There were also cases, in which the lungs were inflamed, a very few in which the stomach was inflamed and black vomit took place, and others in which the joints and other parts were inflamed.

The appearance of prostration, which was so much noticed in this epidemic, surely did not arise from a real debility, or loss of power. It was the

same, which is seen always in fever ; it was the most characteristic symptom of the access, which in this epidemic was violent and comparatively long continued. It was also aggravated in many instances by the suspension of the animal functions in consequence of pressure on the brain.

I am aware that a much a greater detail and a more precise statement of facts would be necessary to give satisfaction to all who hear me, and to induce them to adopt the opinions advanced on the subject of epidemics. It is not possible, however, to do more on this occasion than to explain my own opinions, and I would rather leave others to the evidence, which reading and observation will, as I believe, be constantly furnishing them. Meanwhile to connect what has been said on this subject, it may be remarked that, if my observations respecting epidemics be correct, they go to confirm the doctrine that a rigid classification of cases of fever cannot be made.

Do the opinions and principles which have been advanced, lead to any practicable advantages ? In reply to this question, it may be said that if they lead to a more just estimate and discrimination of the phenomena of diseases, they cannot fail ultimately to be of practical utility.

But it will not be difficult to point out very positive advantages, to which these principles will lead. If they be correct, they lay the foundation for general rules to be observed in treating all epidemics ; and these rules such as may be drawn from experience in past epidemics, and such as shall be

applicable to individual cases. It will not be possible at this time to do any thing more, than to point out very generally how these results are to be attained.

First, the physician must study the phenomena of fever generally. He must remark the occurrence of these phenomena in paroxysms ; he must, as a model, study a perfect paroxysm, noticing the characteristics of its different stages when most distinct ; he must then learn to distinguish these different parts, elements, or stages of paroxysms, when they occur in fevers without regular order, and not in succession. If he find that every case of simple idiopathic fever is constituted of some of these elements, although each case does not exhibit the presence of all of them, he is better prepared to distinguish the varieties of this multiform disease. He is also to bear in mind that the disease has varieties grounded on other circumstances, of which some at least have been referred to in this discourse.

Second, the physician must constantly have in mind the occurrence of local derangements, in addition to the general derangement, in fever ; arising principally from congestion, haemorrhage and inflammation. These local derangements he will find to disturb the regular order of occurrences in fever and to increase the danger, and hence to justify the epithets ataxic and malignant, which have been applied to the cases in which they take place.

Third, having learnt to distinguish the elements, of which fever consists, he will learn to distinguish

those, which are present in any individual case of fever, and to ascertain the relative force and importance of them. He will learn from which of these the greatest danger arises, and direct his remedies to the removal or diminution of that part of the disease ; at the same time that he will employ, so far as circumstances permit, the remedies adapted to the removal of the whole disease. In general, however, it will be found that when that part of the disease which is most violent has been removed, the remainder will readily and easily subside ; or, if not readily, at least safely.

Does it happen for instance that a case presents only the symptoms of the access of a paroxysm, or these principally ; however much the character of the epidemic may authorize the fear of great vascular action, or of inflammation, the practice should be to stimulate the various surfaces so as to excite action in the extreme vessels, both on those surfaces and by sympathy in the heart. The stimulants employed must be of such strength as the case requires ; but so far as possible the purpose should be effected by such, as are least permanent in their effects, and by such as induce secretions and excretions at the same time that they induce vascular action. Heat therefore, and most especially heat combined with moisture is one of the best remedies in such a case.

But in these cases it occasionally happens that something more is to be done. For, as has been stated, in a severe access there is sometimes great

oppression about the præcordia and obvious embarrassment of the heart ; and, as the blood has left the small vessels, we may well believe that this fluid has accumulated about the large vessels and perhaps in the heart. The stimuli applied induce the heart to make such efforts, as will relieve it from this pressure ; but though this is their tendency, they do not always suffice. If this difficulty exist, it is proper to relieve the heart from the pressure of blood by evacuation. This indeed must be done with a cautious hand. It is not proper to draw a pound of blood at once in such a case ; but it is useful to draw a small quantity, for instance three or four ounces, while the stimulants are still employed ; then to rest a little, but in a short time to open the vein again and thus repeatedly to abstract a small portion of blood until the action of the heart becomes free. When this has been effected it may, or may not be proper to take away this fluid in a larger quantity, according to the circumstances that ensue.

It may not often happen that the symptoms of the access, or of any stage continue for a very long time, without a mixture of those of other stages ; for in the ordinary course of things the system when affected by fever is almost constantly going through changes, or passing from one stage to another. But yet it very often happens that the symptoms of some one stage predominate, that the danger arises from this source, and this danger can be opposed only when the proper discrimination is made. It still oftener happens in severe.

epidemics, that the danger arises from inflammation, haemorrhage, or congestion, and that this danger is to be obviated only by relieving the organs affected from undue pressure. It would be interesting to advert more fully to this part of the subject and to consider the methods, sanctioned by experience, of overcoming the dangers from such local affection ; but this would lead me to trespass too far on your time. I shall then only express my conviction, that ordinarily these dangers are not to be removed without the use of the lancet. The considerations, which should decide how frequently blood should be drawn and to what extent, would of themselves form an ample subject for another discourse. Allow me to state generally that, where important organs are affected by inflammation combined with fever, the danger is vastly greater and more pressing than when the same parts are affected by inflammation alone. The disease commonly destroys life by the interruption of the functions of the diseased part and by aggravating the violence of the fever. In such cases nature sometimes gives relief by suddenly instituting some great evacuation and producing resolution in the inflamed part. The only safe practice is to imitate this method of nature. Blood-letting is preferable to other evacuations, and is more to be relied on in such a case ; 1st. because the disease is vascular ; 2d. because this evacuation is attended with less fatigue and distress to the patient and with less injury to the great organs of his body than any other ; and 3d. because in this way only

can we be sure to make the evacuation sufficiently copious and sufficiently quick. Blood should be drawn until the inflamed organ is relieved. This must be the criterion; we are not to consider the state of the pulse, nor the state of the blood, but the sensations of the patient and the functions of the diseased part. At the same time the remarks already made should be referred to; viz. that it is not while the symptoms of the access are predominant that this practice should be adopted. Likewise it may be added that the patient may be supported by cordials, if the case require it, while this system is pursued.

When this treatment is adopted and the local disease is removed, the fever will generally assume a mild character and will shortly terminate in a crisis. That the patient will at once recover strength, after such a mode of treatment, cannot be expected. The treatment is adopted to save him from the most imminent danger to his life, and in such a case it is comparatively of little moment, whether his convalescence be protracted for a few weeks, or even for a few months. But experience does not show that the debility, which follows this mode of treatment, is so great as might be apprehended. If the system be speedily relieved from disease at its commencement, and it is only then that this practice should be adopted, the recovery is oftentimes as rapid as after the mildest fevers. If the treatment be bold and the relief be perfect, the risk of protracted debility is seldom realized.

Such is the outline of the advantage to be derived from regarding the phenomena of fever in the manner which has been proposed ; and I will conclude with a single remark.

If these views be not correct, yet, in as much as they would lead us to attend minutely to the phenomena of fevers and to arrange these phenomena in distinct classes, so they would in some measure supply the place of a division of fevers into species and would also lead us with greater certainty, ultimately to discover whether any such division could be made.

NOTES.

Note A. p. 4.

In part to justify the assertions made in the discourse, but in part also from a sincere desire to make known the simple, but effectual system adopted by the Massachusetts Medical Society, I shall offer a brief exposition of that system and state its actual effects.

This society, like most scientific and literary institutions, was originally designed to be composed of a select number only ; and it was presumed that the honour of an election into it would be an object of emulation among all young physicians. The members, who composed it from its establishment in 1782 to its re-organization in 1803. were the physicians of the most prominent character in the commonwealth. There were among them men, who were deservedly honoured for their scientific attainments, and many who were most justly esteemed for their professional acquirements and skill. But in so young a country, in which the ardour of science could not derive support and encouragement from surplus wealth, it was not to be expected that this society would become distinguished among the learned. Its members were too busily engaged in their daily practical duties, each in a limited sphere, to occupy themselves in great scientific labours. They were not however negligent of the opportunities which occurred to them, as was shown by the publication in 1790 of the first number of their communications.

The number of Fellows was originally limited to seventy. The society was authorized to point out a mode of education for medical students ; and it was obliged to appoint censors, whose duty it was to examine students who should apply to them, such students having pursued the method of education pointed out. Students, who were approved by the censors, received letters of license to practise medicine and surgery. In some instances candidates for practice

availed themselves of this opportunity of proving their qualifications, but the number was comparatively very small. It may be added that during the period referred to, there were some, they also few in number, who received medical degrees from the University at Cambridge after having complied with the requisitions of the medical institution there. In the great majority of instances however young physicians engaged in business without any recommendation or license from a public body, and without having complied with any regulations as to the term or mode of education. It must be presumed that many of them were very imperfectly qualified for the important duties of their profession.

It was obviously a great object to compel, or to induce medical students to give satisfactory evidence of their qualifications before commencing professional business. But it was believed that this object could not well be effected in any country by positive law; and certainly not in this country, where the citizens are so justly jealous of their rights. No law could effect the object, the operation of which might not be extended to the interruption of the kindest offices of charity. The people must always be permitted to seek relief wherever they please; and their confidence will be limited to the regularly initiated, only when they are satisfied that none others are equally worthy of it. The great object must be effected then by influencing public opinion; and this could not perhaps be so well directed in any way as by the actual members of the profession.

With the views, which have here been briefly sketched, the society applied to the legislature of the commonwealth in 1803 for an alteration of its charter, and this was granted. By this they were permitted to enlarge their number indefinitely. It was also provided that all persons, who should become licentiates of the society, or medical graduates of Harvard University, after the date of the new law, should be entitled to claim admission into the society. The only requisites were that they should first spend three years in actual practice within the commonwealth, and that they should be of good moral character.

The society now proceeded to elect to fellowships all respectable physicians within the commonwealth as fast as they became known to them. Thus all, who were actually in practice and in good repute, were made to take an interest in the society; and this they were the more encouraged to do by certain privileges granted to its fellows by the new act. At the same time it was known that in future the mode of obtaining an admission was to comply either with the bye-laws of the society in respect to education, or with the

statutes of the university, so as to become entitled to the honours of one of those institutions. Lest the desire to obtain the advantages of a fellowship of the society, which would be a distant good, should not operate sufficiently on the candidates for practice, another and that a most important measure was adopted. The society passed a bye-law, forbidding any of its fellows to consult with, to aid or to assist in any way, any medical practitioner, who should enter his profession after the passage of said bye-law, without having obtained a license from the society, or a medical degree from the university. Thus a candidate for practice, who has not obtained one of these, must be disconcerted by the respectable members of the profession, and of consequence it is presumed by the public. Thus there was an additional and commanding inducement given to young men to acquire a proper education.

It must be obvious that the effects of this system could not be seen immediately. They were to be manifested in the generation which was to rise up after its adoption. Also it was not enough that the regulations were adopted; they must be practically enforced. Inconveniences would arise, as under every new system. Time and experience only could teach the methods of obviating these. The period however has now arrived, at which we can speak of the effects of this system, and these I shall state with accuracy and fairness.

First, there has taken place a great change, throughout the commonwealth, in respect to the value placed on regular medical education. The public, the citizens generally, have become much more solicitous to learn whether young physicians have duly qualified themselves for their professional duties. The citizen will judge for himself respecting the natural sagacity, the good judgment, the prudence, the firmness and the moral character of his physician; but respecting his professional education the citizen cannot judge, and of that therefore he demands the regular credentials.

Second, the increased and more general attention to medical science has operated upon students. Their zeal has been excited and they are more solicitous to be duly instructed. The instruction is not only necessary as a passport to practice, it has become necessary to every ingenuous and intelligent youth for his own satisfaction. The pupils no longer understand that it is enough, if they learn what one master can teach, or if they get the mere routine of his practice; they have discovered that they are to excel their fathers. With a more generous enthusiasm their fathers encourage them to do so; and only lament that the change had not happened at an earlier period.

These are not exaggerations. The change within only fifteen years has been most manifest. It is not that medical science itself

has received great improvements among us ; not indeed that we have failed to do in that respect the little that could be expected of us, but the change is in the greatly increased diffusion of the fundamental principles of our art. It is not pretended that our education is better than in many other places, nor even so good as in some others. But in my more enjoy its advantages. It is not so easy among us, as in most other parts of the world, either in Europe or America, for a physician to engage in business, without certain necessary qualifications. Our standard is perhaps nearly as high as the state of society will bear. I trust there is a disposition to raise it as fast, as the general advance in wealth and intellectual improvement will permit.

It must be confessed that the system, which has been described, has not been introduced into every part of the commonwealth ; and that it has not been established equally in every part where it has been introduced. In the central and more populous districts it has been firmly established for several years, and in these districts the good effects are becoming more and more manifest. In the remote districts, and in places where the population is greatly scattered, it has scarcely begun to get established. In these however its influence is becoming known, the real nature and operation of its provisions are now understood and duly valued by the most intelligent physicians, and efforts are making for the introduction of it. These efforts will succeed ; and wherever the system is once introduced it will maintain itself as long as there are any intelligence and any virtue in the community.

Note B. p. 9.

I am not ignorant of the many attempts of pathologists to prove that all fevers are secondary, arising from the local affection of some part of the body. Different organs have been fixed upon by different theorists ; at the present day there seems a tendency to the opinion, that there is not any one organ which is always affected in the fevers, which have been considered idiopathic ; but that any organ, being affected, would produce the general disease ; and that there is always some local affection, which acts as the immediate or proximate cause of fever. I shall not offer the arguments against this opinion, but remark only that the burthen of proof lies properly on those who maintain it, and that they must offer some explanation of the cases, in which the morbid anatomist has not been able to find any local derangement, or certainly none of importance, in the bodies of persons, who have died of fever. It may however be observed *en passant*, that some physicians have been so desirous to prove that local inflammation causes the disease called fever, as to admit almost any extraordinary appearance, however slight, in the

dead body to be evidence of the previous existence of inflammation. Having once established the existence of inflammation in any degree and to any extent, they proceed upon the hypothesis that the same constitutional effects may be produced by a slight and very limited inflammation, as by the same disease when extensive and violent. It will appear in the sequel that I attribute much importance to inflammation when occurring in fever. But upon that point I may here remark that, while inflammation, or a local vascular disease, in an important organ, may add much to the danger of fever when the former is superadded to the latter, it does not follow that every such local affection is capable of producing all the constitutional derangement which we see in fever.

• Note C. p. 12.

It is obvious that a given external agent will produce uniformly the same effect on the living body, if the state of that body be uniformly the same. But trifling deviations are always occurring in the living body and hence trifling differences are to be noticed in the effects of external agents. In fever, and especially when the symptoms of the access are manifested, the effects of external agents differ greatly in kind and degree from those of health. Hence it is inferred that the vital powers have undergone a change. Again, as the internal relations are maintained by the vital powers, if these relations be not maintained as usual, we are authorized to suppose that those powers are affected.

Note D. p. 12.

By the functions of assimilation are meant all those, which are subservient to the formation of blood from the nutriment taken into the living body. By the functions of formation are meant those, by which either solids or fluids are prepared from the blood to be used in the body.

Note. E. p. 13.

The term crisis is used here in the restricted sense, in which it has been employed by our best modern authors, particularly by Fordyce. It means a favourable crisis, the characters of which are that the phenomena of health reappear, accompanied by certain unusual motions and evacuations. These evacuations seem to be produced by the causes of irritation, which had accumulated in the body during the disease, but which had not produced much or any effect, because the vital powers had been in a morbid state, but which do produce efforts in the excretory organs as soon as the pow-

ers are restored to their natural state. Thus, when the intestines recover their natural irritability, the matters which had accumulated in those organs will induce diarrhoea.

Note F. p. 13.

Those, who consider the cold fit, the hot fit and the crisis as alone constituting fever, have always been prone to regard fever as a salutary effort of nature to remove something mimical to the living system. It certainly does seem that the cold and hot stages of the disease have *a tendency* to work some salutary change, since they *tend* to induce a crisis, under which the first morbid appearances subside. I say *a tendency*, since they do not uniformly have the effect to induce crisis, and in continued fever the hot fit is oft repeated before crisis is produced.

Note G. p. 17.

Will it be contended that I really divide fever into different species ? It may be well here to answer this objection, which a superficial view of the subject may suggest. I admit varieties, but except as to type, I contend that idiopathic fevers cannot properly be divided into species. This is not a verbal distinction. The distinction of species is acknowledged by nature in respect to all her productions, and is always well marked in every individual, acknowledged monsters only being excepted. The distinction of natural objects into classes, orders and genera is arbitrary, and though grounded on natural marks, is not properly a distinction made by nature. Accordingly there may be a difference between two systems, equally good in the distribution of the objects of them into classes, orders and genera ; but they must agree as to species. On the other hand varieties as well as species are acknowledged by nature, but those do not differ by essential marks. Species include varieties and these differ among themselves in different degrees, or by gradations, so that some shall more nearly approach the common standard and others less nearly. But if we would mark every degree of variety, we are brought to the discrimination of individuals. It is in this sense I contend that varieties may be found among idiopathic fevers, but not species, except as to type. This undoubtedly enables us to divide fevers into species, but it is still to be borne in mind that the distinction relates to type only ; and that there is the same or nearly the same variation among fevers of one type, as among those of another.

Med. Hist.

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